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Boredom at Work: What, Why, and What Then?

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Abstract: The emotion of state boredom is experienced by nearly everyone from time to time. The workplace may predispose to episodes of boredom when autonomy is low, tasks lack personal meaning or are too simple or too complex, and performers find that attention is effortful or their minds wander. Bored individuals attempt to down-regulate their negative emotional state in a variety of ways, some of which are helpful and others harmful to themselves and/or the organization.

Keywords: boredom, emotion at work, mind wandering, meaningful work, emotion regulation at work, boredom at work

Boredom at Work: What, Why, and What Then?

Cynthia D. Fisher

In 1993, I wrote that boredom at work was a neglected concept (Fisher, 1993), a conclusion reinforced in a 2009 review by Loukidou, Loan-Clarke, and Daniels. The entire psychology literature featured on average less than one article per year on any aspect of boredom between 1926 and 1980 (Smith, 1981). This has changed dramatically over the last few years. Van Tilburg and Igou (2017) report that 1422 articles related to boredom were published in the psychology literature between 2010 and the end of 2015. They conclude that, 'boredom research is gradually moving from the fringes of psychological science toward the mainstream' (Van Tilburg & Igou, 2017 p. 309). Boredom has attracted the attention of scholars from many disciplines, including philosophy (e.g. O'Brien 2014), theology (e.g. Wardley, 2012), sociology (e.g. Barbalet, 1999), human factors engineering (e.g. Cummings, Gao, & Thornburg, 2016; Casner & Schooler, 2015), critical management theory (e.g. Johnsen, 2016; Paulsen, 2015), and educational, social, cognitive, clinical, and organizational psychology. While there are differences in how these disciplines approach and talk about boredom, there are also substantial areas of overlap and consensus.

I will take a predominantly psychological approach in this chapter. While boredom in the workplace is of particular interest, much of the recent literature on boredom is not specific to the employment context. This broader literature is highly relevant and may often inform the understanding of boredom at work. The first task is to clarify what boredom is. I will then consider why people are bored at work, and then explore what they do in response, discussing an expanding range of both positive and negative consequences of boredom in the workplace.

<a>Characterizing Boredom<a>

Boredom has been conceptualized and measured in a variety of time frames. The most long term and stable conceptualization is at trait level, as *boredom proneness* (Farmer & Sundberg, 1986) or *boredom susceptibility* as a component of sensation seeking (Zuckerman, 1979). The most short term is as a transient affective state, more specifically, as an emotion (Fisher, 1993). The literature and measures of boredom quite conveniently divide into trait vs state approaches (Vodanovich & Watt, 2016). In practice, however, most of the non-laboratory research on state boredom has been based on self-reports of the extent to which respondents typically feel bored in a particular context (e.g., work, leisure) – arguably closer to an attitude than a relatively short-lived emotional state. The primary focus of this paper will be state boredom, whether measured in real time or as a typical state at work, with more general trait boredom propensity acknowledged as a likely contributor to the experience of state boredom.

Everyone knows what it feels like to be bored, though a range of academic definitions exist. Vogel-Walcott, Fiorella, Carper, and Schatz (2012) reviewed the literature on boredom in educational settings and found 109 papers that defined state boredom. Table 1 presents a representative set of definitions from a variety of disciplines to demonstrate both variety and communality in views. Early definitions of boredom tended to confound the subjective experience of boredom with antecedent task characteristics such as repetitiveness or lack of stimulation (e.g. Davies, Shackleton, & Parasuraman, 1983). More recently, the subjective experience of boredom has taken center stage and state boredom is now almost universally viewed as an emotion (e.g. Fahlman, Mercer-Lynn, Flora, & Eastwood, 2013; O'Brien, 2014).

Table 1

Definitions of Boredom

Source	Definition	Context

Barbalet (1999, p. 631)	Absence of meaning leads to a restless, irritable feeling that the subject's current activity or situation holds no appeal, and that there is a need to get on with something interesting.	General, Sociology
Davies et al. (1983, p. 1)	An emotional response to an environment which is unchanging or which changes in a repetitive and highly predictable fashion.	Human Factors
Eastwood et al. (2012, p. 484)	The aversive state that occurs when we (a) are not able to successfully engage attention with internal (e.g., thoughts or feelings) or external (e.g., environmental stimuli) information required for participating in satisfying activity; (b) are aware of the fact that we are not able to engage attention and participate in satisfying activity, which can take the form of either awareness of a high degree of mental effort expended in an attempt to engage with the task at hand or awareness of engagement with task-unrelated concerns (e.g., mind wandering); and (c) attribute the cause of our aversive state to the environment (e.g., "this task is boring", "there is nothing to do").	General
Fahlman et al. (2013, p. 80)	The aversive experience of having an unfulfilled desire to be engaged in a satisfying activity.	General
Fisher (1993, p. 397)	An unpleasant, transient affective state in which the individual feels a pervasive lack of interest in and difficulty concentrating on the current activity. When a specific activity is to be performed, individuals	Workplace

	experiencing boredom feel that it takes conscious effort to maintain or return attention to the activity.	
Mikulas & Vodanovich (1993, p. 3)	A state of relatively low arousal and dissatisfaction which is attributed to an inadequately stimulating environment	General
O'Brien (2014, p. 237)	A mental state of weariness, restlessness, and lack of interest in something to which one is subjected, which is unpleasant and undesirable, and in which the weariness and restlessness are causally related to the lack of interest.	General, analytical philosophy
Van Tilburg & Igou (2012)	Feeling unchallenged and perceiving one's activities as meaningless	General
Vogel-Walcutt et al. (2012, p. 102)	State boredom occurs when an individual experiences both the (objective) neurological state of low arousal and the (subjective) psychological state of dissatisfaction, frustration, or disinterest in response to the low arousal.	Education

State boredom meets all the criteria for being considered an emotion. First, it varies substantially within person over time. In a diary study of boredom at work, 61% of the variance in daily boredom was within person (Van Hooff & Van Hooft, 2017). A weekly study of boredom in a university class reported that 66% of the variation in boredom during lectures over the semester was within person (Tanaka & Murayama, 2014). Second, boredom, like all emotions, can be described by characteristic cognitive appraisal, affective, somatic, and motivational/action tendency components. Table 2 displays what is known about boredom in terms of these components, with a sample of citations for each.

Table 2

Summary of Qualities of Boredom as an Emotion

Affective Tone	Mildly to highly negative/unpleasant	Van Tilburg & Igou, 2017
Cognitive Appraisals		
Goal relevance	Low	Van Tilburg & Igou, 2017; Eastwood et al., 2012; Fisher, 1993; Russell, 1980; Smith & Ellsworth, 1985
Goal congruence	Low	
Coping potential	Low OR very high	
Novelty/complexity/ambiguity	Low OR too high	
Effort	Low (or occasionally high)	
Attention	Low	
Meaningfulness	Low	
Perceived challenge	Low	
Action Tendency	Escape, disengage, distract, change tasks (or apathy/learned helplessness)	Goetz et al., 2014; Van Tilburg & Igou, 2012
Somatic State		
Arousal/physiological response	Deactivated OR activated	Fahlman et al., 2013; Merrifield & Danckert, 2014
Body posture	Upper body collapsed, head backwards, low movement activity, stare, slump, head on arms/hands, yawn OR restless fidgeting	Toohey, 2011; Wallbott, 1998
Psychophysical signature	Relative to sadness, increasing heart rate, decreasing skin conductance, increasing cortisol	Merrifield & Danckert, 2014
Function	Motivate pursuit of more rewarding/meaningful goals/activities	Barbalet, 1999; Bench & Lench, 2013; Elpidorou, 2014

In terms of cognitive appraisals, boredom is very low in attention, meaningfulness, challenge, goal relevance, and goal congruence. Boredom has been shown to have a different pattern of appraisals from other negative emotions including sadness, anger, frustration, fear, disgust, feeling depressed, guilt, shame, regret, and disappointment (Van Tilburg and Igou, 2012; 2017) and is empirically distinct from apathy, anhedonia, depression, and anxiety (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009; Goldberg, Eastwood,

LaGuardia, & Danckert, 2011). In the workplace, Reijseger et al. (2013) have shown that boredom can be empirically distinguished from burnout and engagement, though the states are correlated.

In terms of affective tone, there is agreement that boredom is almost always affectively unpleasant, though intensity may vary considerably. In terms of arousal, boredom is unique among emotions in that arousal level may vary from very low (passive resignation, drowsiness) to quite high. A few of the definitions in Table 1 explicitly include low arousal, while many other authors have noted the frequent occurrence of high arousal (e.g., Bench & Lench, 2013; Fahlman et al., 2013; Goetz, Frenzel, Hall, Nett, Pekrun, & Lipnevich; 2014; Merrifield and Danckert, 2014). In the latter case, bored individuals experience high levels of restless agitation as they increase their efforts to forcibly maintain attention on the current task or to escape the boring situation physically or psychologically.

In terms of adaptive purpose (Keltner & Gross, 1999; Lench, Bench, Darbor, & Moore, 2015), the function of the emotion of boredom is to stimulate exploration and the pursuit of new and more rewarding opportunities. Elpidorou (2014, p. 2) notes that 'boredom is informative' and that it 'motivates the pursuit of a new goal when the current goal ceases to be satisfactory, attractive, or meaningful.' The autonomic arousal that can accompany boredom prepares the individual for such action (Bench & Lench, 2013). In general, a tendency to abandon pointless pursuits and seek more rewarding and goal-congruent activities is likely to be adaptive and facilitate survival. However, the demands and constraints of many work settings limit choices of alternative goals and activities, and the efforts of employees to down-regulate boredom may sometimes produce undesirable outcomes for organizations. Specific employee responses to feeling bored at work will be discussed in more detail later in this chapter.

Further, emotions have objects – they are felt about/because of/in response to a specific stimulus, event or situation. In the case of boredom, the object is described well by O'Brien (2014, p. 241) as 'something repetitive, monotonous, predictable and all-too familiar; something too far above or too far below one's level; or something compulsory; or something to which one is confined.' A definition of the emotion of state boredom which combines key elements of the above discussion is: *An aversive feeling of 1. being trapped in a situation, 2. with an undesirably low or high level of challenge or stimulation, 3. low relative meaning, and 4. the experience of restlessness and attentional difficulties in consequence.*

One might wonder whether state boredom has types or dimensions. Working in the educational field, Goetz et al. (2014) suggest that there are five types of boredom in academic settings, distinguished by their degree of unpleasantness and arousal. The first type is *indifferent boredom*, which is low in arousal, relaxed, mellow and slightly positive in hedonic tone. *Calibrating boredom* is relatively low in arousal and slightly negative in valence. Attention may wander and the individual is willing to change the boring situation though they are not actively working to do so. *Searching boredom* is higher in both arousal and negative valence, featuring restlessness and a more active search for alternative activities to relieve the boredom. *Reactant boredom* is very high in arousal and negative valence, with a very strong desire to escape the situation. Finally, *apathetic boredom* is low in arousal but very negative in hedonic tone, resembling learned helplessness or depression, and may occur when efforts to escape have failed. It has been suggested, though not tested, that individuals may progress from mild to more intense types of boredom as exposure to a boring situation continues over time.

Boredom is often conceptualized and measured as a unidimensional construct (e.g. Reijseger et al., 2013), though the Multidimensional State Boredom Scale has five dimensions which load on a higher order general boredom factor (Fahlman et al., 2013). The

dimensions are lack of engagement, high arousal, low arousal, difficulty focusing attention, and perceived slow passage of time. Baratta and Spence (2015) recommend treating these as multiple correlated dimensions rather than combining them into a single composite score for analysis purposes.

Finally, one might ask, who experiences boredom? The short answer is probably almost everyone, from time to time. Boredom has been described as one of the most common of all human emotions (Toohey, 2011) and was reported by 63% of respondents on at least one occasion in a ten-day experience sampling study (Chin, Markey, Bhargava, Kassam, & Loewenstein, 2017). Chin et al. found that boredom was most often reported while individuals were studying, doing nothing in particular, or at work. Historically, boredom at work was considered most common and problematic in routine and monotonous tasks such as factory assembly work, long haul driving, and inspection tasks. With the advent of more automatic systems in the modern workplace, boredom is now a problem in supervisory control situations in which humans monitor computerized systems for the rare occasions on which intervention is needed (Casner & Schooler, 2014; Cummings et al., 2016). However, boredom can also be experienced by white collar and professional employees who might appear to hold enriched and stimulating jobs (Costas & Kärreman, 2016; Harju & Hakanen, 2016; Van der Heijden, Schepers, & Nijssen, 2012). At the other end of the evolutionary scale, it is possible that an affective experience similar to boredom occurs in captive animals housed in unenriched environments in laboratories or zoos (Williams, 2015). 'Bored' animals may develop self-harm behaviors, stereotypies, helplessness, and other indicators of low well-being.

<a>Causes of Boredom<a>

The definition of state boredom adopted in this chapter points to several categories of causes: 1. being trapped in a situation with little autonomy, 2. with an undesirably low or

high level of challenge or stimulation, 3. with low relative meaning, and 4. experiencing attentional difficulties in consequence. Each of these will be explored in more detail below.

<b>Being Trapped/Lack of Autonomy<b>

One work environment contributor to boredom is lack of autonomy, which may operate in several ways. First, individuals may attribute their task activity to external control and discount potential intrinsically interesting aspects of the task, as suggested by Cognitive Evaluation and Self Determination Theories (Deci and Ryan, 1985; Ryan & Deci, 2017). Jang (2008) has shown that providing an autonomy-supportive rational for continued work on an uninteresting task was effective in engaging students in learning and that an increase in identified regulation accounted for this effect (Ryan & Deci, 2000). Second, when a task is performed solely for external reasons, it is likely to be seen as having low personal meaning, as described below. Third, strong external controls such as detailed work rules, close supervision, and the requirement to remain on task or at one's workstation may reduce opportunities to escape, avoid, or modify boring activities to be more interesting (Fisher, 1993).

<b>Undesirably Low or High Level of Challenge or Stimulation<b>

Both under and over-challenging tasks, relative to the performer's capabilities, can result in boredom (Acee et al., 2010; Fisher, 1993). Tasks that are repetitive, simple, or require continuous attention in a search for intermittent targets often induce boredom. These tasks either can be performed with very little attention or require a high level of sustained attention without providing stimulation in return (e.g. vigilance tasks). Jobs which feature periods of waiting to act while having nothing to do, as may be the case for many service provider jobs, can also be boring due to inadequate challenge (Fisher, 1993). An optimal level of relatively high challenge and relatively high performer skill may provide the least boring situation (Csikszentmihalyi & LeFevre, 1989). Job characteristics theory suggests that jobs that are

chronically low on skill variety, task identity, task significance, autonomy, and feedback are unlikely to sustain interest or intrinsic motivation (Hackman & Oldham, 1980). However, prolonged performance and repetition may lead to satiation and boredom even on tasks that ordinarily have the potential to be interesting.

On the other side of the scale, work tasks that are too complex for performers are also often perceived as boring and create attentional difficulties (Acee et al., 2010; Fisher, 1993). Pekrun's (2006) well-known Control–Value Model of emotions in academic achievement settings suggests that students will be bored when they experience low subjective control over outcomes in the form of weak self-efficacy, as is more likely when tasks are too difficult. Considerable evidence supports this assertion (e.g. Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Tanaka & Murayama, 2014). More directly, there is evidence that student boredom in classes is positively related to the perceived difficulty of the material (Acee et al., 2010; Tanaka & Murayama, 2014) at both between and within person levels. Difficult material has high attention demands but failure to understand means that attention is unrewarding. There is evidence that performance and boredom are linked by feedback loops and reciprocal causation – boredom contributes to later poor performance through attentional failures and low motivation to engage with the task, and poor performance leads to future boredom, presumably through reduced subjective control (Pekrun, Hall, Goetz, & Perry, 2014).

<b>Low Relative Meaning<b>

Humans are meaning-seeking beings, and meaninglessness has been identified by a number of scholars as a key cause of boredom (e.g., Barbalet, 1999; Van Tilburg & Igou, 2012). What is or is not meaningful is an idiosyncratic judgment by individuals. Klinger's (1999, 2013) work on the content of everyday thought shows that thoughts often turn to current concerns or goals to which the individual is committed. When required to attend to a

task that is not relevant to salient current concerns or goals, individuals experience frustration and find paying attention to the task effortful and the task boring (Critcher & Gilovich, 2010). Even a work task which is enriched and would normally be engaging can be perceived as boring and lacking in relative meaning when other concerns are more pressing.

In education, Pekrun's (2006) Control–Value Model addresses meaning via the value component of the model – whether students believe that a learning activity has immediate or long-term benefits. A host of studies show that when value is higher, boredom is lower, motivation is higher, and learning is more likely (e.g. Jang, 2008, Pekrun et al., 2010). In the literature on job design, job characteristics such as task identity, task significance, and prosocial impact are likely to provide meaning and motivation and thus reduce boredom (Grant, 2008a, 2008b; Hackman & Oldham, 1980).

The literature on interests contains considerable research on the concept of stable *individual interests*, how they develop, and the effects they have on motivation and learning (e.g. Hidi & Renninger, 2006; Renninger & Hidi, 2016; Rotgans & Schmidt, 2017). For instance, one may develop a sustained individual interest in dog training, in mathematics, in medieval history, or in web design. Working in an area of individual interest is usually meaningful, enjoyable, stimulating, and undertaken for reasons that feel relatively autonomous. Surprisingly, there is no analogous construct in the boredom literature, though surely people do develop active aversions to particular topics or activities that are consistently disliked and meaningless to their concerns. Activities related to these idiosyncratic *individual boredoms* would almost immediately induce state boredom, attentional difficulties, and the urge to escape. Introspection suggests, for instance, that my individual boredoms include anything to do with sports involving men and balls, all discussions of higher education research policy, and anecdotes about the antics of other

people's children. Individual boredoms are ignored by generic approaches to work design and may require focus on a much more customised view of person-job fit.

Alternative views on lack of meaning as a cause of boredom are provided by European critical management theorists, with worker alienation, a concept similar to boredom, seen as a near-inevitable consequence of capitalism. Johnsen (2016) suggests that boredom is a relatively new construct which emerged in connection with the rise of modern organizations and their imposition of artificial time regimes which strip meaning from human activities. Costas and Kärreman (2016) conducted a qualitative study of boredom among management consultants in two large firms. They found that many of these highly qualified individuals reported being bored and saw their work as repetitive, standardised, clerical, and unimportant – essentially, lacking in meaning. This created an identity clash with their employers' discourses about the autonomous, creative, and highly varied nature of the elite consultant role. The root cause of boredom in this situation was attributed to unfulfilled expectations about what the work would be like (high vs low in meaning) and subsequent arrested identity. Similarly, Bailey, Madden, Alfes, Shantz, & Soane (2017) caution that heavy-handed or inauthentic efforts by organizations to manage meaning may create disengagement and 'existential labor' for employees.

<b>Attentional Difficulties and Other Meta-Cognitive Cues<b>

While attention to a boring task may wan due to low autonomy, too much or too little challenge or stimulation, and/or low relative meaning, there is evidence that the experience of attentional difficulty itself, as well as perceptions of the slow passage of time and high subjective effort, may directly contribute to the inference that one is bored (Eastwood, Frischen, Fenske, & Smilek, 2012). Damrad-Frye and Laird (1989 p. 320) state that 'boredom seems to represent a metacognitive judgment about one's attentional activity.' Boredom is felt when the current activity fails to capture and hold the performer's attention,

or it takes conscious and continuous effort to sustain attention, or the performer is acutely aware of wishing to direct attention elsewhere. Internal awareness of mind wandering, feelings about the slow passage of time, and subjective effort in focusing attention are all metacognitive cues that boredom is being experienced.

People have implicit theories of what mind wandering signals about their feelings toward the current activity. The content as well as the occurrence of mind wandering is relevant to inferences of boredom (Critcher & Gilovich, 2010). Fisher (1998) showed that individuals believed that frequent mind wandering at work indicated boredom and dissatisfaction with the job, especially when the mind wandering was to unimportant and non-urgent topics. Critcher and Gilovich (2010) found that when performers' minds wandered to other pleasant activities they could be doing at the moment, or to several such things, and there was no obvious reason why it should do so, they inferred that they were bored with their current task. If their minds wandered to an unpleasant, single, or past event (out of the many past events potentially available to think about), then mind wandering was attributed to the 'reverie's irresistible pull' rather than to boredom with the task.

Altered perceptions of the passage of time are associated with both boredom and interest, probably as a side effect of the low versus high amount of attention absorbed by the task. Time seems to drag when one is bored, yet fly when one is engrossed in an interesting activity. The German word for boredom, *langeweile*, literally means 'long time' (Belton & Priyadharshini, 2007), and time perception is one of five dimensions in Fahlman et al.'s (2013) measure of state boredom. Conti (2001, p. 3) notes that, 'The "watched pot" feeling of time inching slowly along contrasts sharply with the pleasant, absorbed feeling that comes with "losing track of time."' With few exceptions, conscious attention to the slow passage of time seems to be aversive.

There is evidence that individuals use their perception of the passage of time as input into judgments about whether or not they are bored. Several laboratory studies have manipulated the apparent passage of time by displaying clocks that ran faster or slower than real time, or told participants that their 15-minute work period was completed when actually either 10 or 20 minutes had passed. Unless given an alternative explanation for altered time perception, individuals led to believe that time passed slowly concluded that they were more bored with the task, and those led to believe that time passed swiftly concluded that they enjoyed the task more (London & Monell, 1974; Sackett, Meyvis, Nelson, Converse, & Sackett, 2010; Sucala, Stefan, Szentagotai-Tatar, & David, 2010).

Another meta-cognitive cue that one is feeling bored is the perception of subjective effort. In Bruya's (2010) book on effortless attention, he points out that normally one would expect subjective cognitive effort to increase as task demands and concentration increase, but there is sometimes a paradoxical reduction in perceived effort, despite very high levels of concentration, when individuals enter a state of flow while engaged in performance of an optimally challenging task. The perception of the amount of effort required to continue to concentrate on a task appears to be a key cue in appraisals of boredom versus interest, with effortful attention suggesting boredom. Damrad-Frye and Laird (1989) created high and low volume auditory distractions from a task. They found that when individuals were distracted by low background noise, they attributed their difficulty in attending to the task to boredom with the activity itself. When the noise was louder, they correctly attributed their attentional difficulties to the noise rather than to boredom with the task.

In sum, individuals are likely to feel bored when they feel trapped in a low autonomy situation on a task that is too simple or too challenging for them, that has little meaning (or less personal meaning than competing current concerns), and when they are aware of mind

wandering, the slow passage of time, and the large amount of effort required to maintain attention to the task. We will now consider how individuals react when in such a situation.

<a>Responses to and Consequences of Boredom<a>

Individuals often attempt to regulate their emotions, and in particular, to reduce their experience of negative emotions (Koole, 2009). The most common and effective approaches to down-regulating negative emotions in general include distraction and reappraisal (Augustine & Hemenover, 2009; Webb, Miles, & Sheeran, 2012), and these approaches are used in the case of boredom as well. Negative emotions signal that something is wrong, that progress toward a goal is unsatisfactory (Carver and Scheier 1990). Boredom specifically signals 'there is nothing here for you; try something different.' The adaptive purpose or function of boredom is to stimulate movement, exploration, and seeking a more rewarding and meaningful environment (Bench & Lench, 2013). However, it is sometimes beneficial long term to the individual to persist on a task even though it is experienced as boring (e.g., to concentrate on a classroom lecture or read a dense report or complete an essential task). In the work setting, employees have performance expectations and are often constrained to situations that greatly restrict their ability to escape a boring task for something more satisfying. Pilots cannot leave the cockpit unattended and autopilot unsupervised on long flights, anaesthesiologists cannot doze off during surgery, and factory workers must continue to produce products at the required rate. Boredom in these situations is sometimes detrimental for well-being and performance. The negative affective consequences (or at least correlates) of boredom will be discussed below. I will then discuss behavioral and cognitive responses to boredom that may occur either while continuing to work on the boring task or escaping to alternative off-task activities. Finally, the performance-related consequences of boredom and employees' attempts to cope with it will be discussed.

<b> Affective Responses to Boredom<b>

At trait level, boredom proneness is associated with depression, hostility, anger, impulsivity, aggression, low life satisfaction, and negative affect (e.g. Kass, Vodanovich, & Callender, 2001; Vodanovich, 2003, Vodanovich & Watt, 2016). A large number of correlational studies have confirmed that typical/chronic boredom at work is negatively related to attitudinal outcomes such as job satisfaction, engagement and organizational commitment (e.g. Reijseger et al., 2013). Boredom positively predicts burnout and experienced stress and subsequent physical and mental health sequalae (Harju, Hakanen, & Schaufeli, 2014; Reijseger et al., 2013). In one of the very few within-person daily field studies of boredom, Van Hooff and Van Hooft (2016) found that daily boredom was positively related to depressed mood at the end of the workday for employees who were high on work centrality. In a second daily study, they found that boredom one day negatively predicted intrinsic motivation and job attitudes the next day (Van Hooff & Van Hooft, 2017). An experience sampling study involving reports of emotions every 30 minutes found that boredom often co-occurred with other negative emotions such as loneliness, anger, sadness, and worry (Chin et al., 2017). Clearly, boredom is an unpleasant affective state that is associated with other negative states. It is therefore not surprising that bored individuals attempt to self-regulate this unpleasant emotion in a variety of ways.

<b> Cognitive and Behavioral Responses to Boredom<b>

Cognitive and behavioral responses to boredom should include attempts to address its causes in the form of lack of autonomy, too much or too little challenge or stimulation, and low relative meaning (Van Tilburg & Igou, 2012). Such attempts may feature reappraisal and other strategies to exert control or enhance interest, challenge, and meaning while continuing to work on the original task. Alternatively, these attempts may utilise distraction, either by dividing one's attention while working on the original task, or by escaping from the boring

task to another activity (Nett, Goetz, & Hall, 2011; Skowronski, 2012). Table 3 lists responses to boredom which have been documented in the workplace and/or the classroom.

Table 3

Cognitive and Behavioral Responses to Boredom

	Increase meaning or challenge or variety on-task	Increase meaning, challenge, or variety off-task	Distract or escape
Behavioral Responses			
Increase or vary pace of work	x		
Ask for more work or to learn new skills	x		
Switch between tasks	x		
Suggest ways to improve the work	x		
Change or vary methods of work	x		
Perform additional (work or non-work) tasks concurrently	x		
Do boring task first to get it over with	x		
Job crafting	x		
Horseplay, sabotage, risky behavior	x	x	
Fidget	x		
Prosocial/organizational citizenship behavior		x	x
Counterproductive work behavior		x	x
Socialize, gossip		x	x
Cyberloaf or other forms of time banditry		x	x
Absence, tardiness, long breaks			x
Sleep			x
Quit, retire early			x
Eat, drink, snack			x
Procrastinate			x
Cognitive Responses			
Exert effort to concentrate	x		
Set task goals	x		
Reappraise task importance	x		
Mind wandering	x		x
Increase social identity	x	x	

<c> On-task Responses<c>

Some responses to boredom are efforts to increase engagement with the current task. Sansone and her colleagues have written extensively about their Self-Regulation of Motivation Model (e.g. Sansone & Harackiewicz, 1996; Sansone & Thoman, 2005; Sansone, Weir, Harpster, & Morgan, 1992). When a task is boring but individuals believe they will benefit from continuing to perform it, self-regulation of interest is helpful to sustain effort and persistence. They suggest that individuals monitor their motivation and enact strategies to create or maintain motivation toward a boring task when needed. Their research has identified a number of Interest Enhancing Strategies (IES) spontaneously adopted by individuals who wish to persist on a task initially found boring. Some IES include deepening involvement with the task by setting challenging goals or introducing extra demands or variety to the task to make it harder, and generating self-relevant rationales for why the activity is desirable and beneficial to personal goals.

Green-Demers, Pelletier, Stewart, and Gushue (1998) investigated the effectiveness of a number of IES in enhancing motivation toward the less interesting aspects of training among ice skaters. They found that generating self-relevant rationales for the task (reappraisal), increasing challenge by varying the way the task was performed, and setting difficult goals were effective in enhancing motivation. Smith, Wagaman, and Handley (2009) hypothesized and found that IES were more likely to be used and were more effective in enhancing intrinsic motivation when individuals were working under a promotion (gain) focus than a prevention (avoidance of loss) focus. The playful inventiveness permitted in a promotion focus is a good regulatory fit with IES, whereas careful performance of the task exactly as instructed is a better regulatory fit with prevention focus. Aside from generating more interest in the task itself, some individuals report simply applying will power to complete the

boring task as quickly as possible, or undertaking the boring task first to get it over with (Sansone, 2009).

There is evidence that IES are also used in the workplace by employees seeking to cope with or ameliorate boredom. Game (2007) described boredom coping strategies involving *engagement* (extend the task, make it more complex, build one's task-related skills, learn new things, do extra work, cognitively reframe the task to enhance its importance to one's goals), *partial engagement* (set task goals or promise oneself rewards for persistence), or *disengagement* (seek off task stimulation, avoid the task, procrastinate, switch to another task, daydream). Game (2007) called the on-task engagement strategies 'a personalised form of job enrichment' and found that use of engagement strategies was associated with greater employee well-being, higher job satisfaction, and better compliance with safety regulations.

In a similar vein, two recent articles have explored the engagement strategy of job crafting (Wrzesniewski & Dutton, 2001) as a response to or means of coping with boredom. Harju et al. (2016) found that job crafting in the form of seeking challenges predicted future increases in engagement and reductions in boredom, though high initial job boredom impeded crafting. Van Hooff and Van Hooft (2014) found that bored employees who engaged in job crafting (seeking challenges and increasing structural resources) were less likely to perform dysfunctional 'bored behaviors' such as daydreaming, taking breaks, or shifting to non-work activities. Job crafting seems likely to enhance perceptions of autonomy and meaning as well as providing more stimulating work, probably in areas of individual interest.

Other IES involve seeking additional stimulation or meaning during performance of a boring task by distracting oneself from the task with concurrent physical or mental activities. These may include actions such as fidgeting, talking to others, listening to music, horseplay, or performing a second task while continuing to work on the primary task (Fisher 1993).

Green-Demers et al. (1998) found that seeking additional stimulation from the surrounding environment rather than from deeper interaction with the task itself was not effective in enhancing either intrinsic or extrinsic motivation for the task.

There is some evidence that any stimulation, even unpleasant stimulation, may be preferable to unrelieved boredom. Havermans, Vancleef, Kalamatianos, & Nederkoorn (2015) gave university students a choice to administer an electrocutaneous shock of varying intensities to their own forearms while they watched a one hour documentary or one hour of continuous repetitions of the same 85 second segment of the documentary. They shocked themselves ten times as often on average, and up to 3.5 times as intensely, while watching the repetitive (boring) video. This has some analogies to the behavior of mink kept in an unenriched environment. They were quicker to orient to novel stimuli of all valences, and engaged with them for longer, than mink kept in an enriched environment (Meagher & Mason, 2012).

Perhaps the most common response to boredom while working on a task is mind wandering, also called task un-related thought, daydreaming, stimulus-independent thought, self-generated thought, and spontaneous thought (Baars, 2010; Cummings et al., 2016; Smallwood, 2013). Experience sampling studies show that up to half of all waking human thought is not related to the immediate task or the external environment (Killingsworth & Gilbert, 2010; Klinger, 1999). Mind wandering may represent an attempt to use distraction, employ excess cognitive capacity, and establish meaning by focusing on more personally relevant thoughts during the performance of a boring task (Kane et al., 2007; Stawarczyk, Majerus, Maj, Van der Linden, & D'Argembeau, 2011). Even airline pilots report frequent mind wandering while flying (Casner & Schooler, 2014; 2015). Such stimulus-independent thought should not be regarded merely as a form of cognitive failure, but instead as a uniquely human adaptation which assists individuals in successfully navigating the

challenges of their lives (Baird, Smallwood, & Schooler, 2011). Baars (2010, p. 208) notes that, 'The stream of spontaneous thought is remarkably rich and self-relevant, reflecting one's greatest personal concerns, interpersonal feelings, unfulfilled goals and unresolved challenges, worries and hopes, inner debates, self-monitoring, feelings of knowing, visual imagery, imaginary social interactions, recurrent beliefs, coping reactions, intrusive memories, daydreams and fantasies, future plans, and more.' Most of these topics would have more meaning and relevance to individuals than an unchallenging and unimportant work task.

Seli and colleagues (Seli, Risko, & Smilek, 2016; Seli, Risko, Smilek, & Schacter, 2016) have discovered that while mind wandering may occur unintentionally as the brain attempts to re-establish an optimal level of arousal, one third or more of mind wandering may be intentional. Unintentional mind wandering seems more common on difficult tasks, whereas intentional mind wandering is likely on easy tasks which require less attention. A great deal of the content of mind wandering is about planning for future goals and actions (Baird et al., 2011), though nostalgic thoughts about the past have also been shown to reduce boredom, mediated by the strength of the motive to search for meaning (Van Tilburg, Igou, & Sedikides, 2013). Who among us hasn't planned their weekend or written a grocery list to stave off the painful restlessness of being trapped in a boring meeting or seminar? While Killingsworth and Gilbert (2010) titled their large-scale experience sampling article, 'A Wandering Mind is an Unhappy Mind' (compared to one that isn't wandering), it is likely that intentionally wandering minds are less unhappy than those trapped in single-minded focus on an unchallenging and meaningless task. The performance-related consequences of mind wandering will be discussed further in a later section of this chapter.

<c> Off-task Responses<c>

Given that the action tendency of boredom is to escape the current situation to one that offers more challenge or meaning, it is not surprising that bored employees avoid or abandon boring tasks when possible. Long-term responses to boredom include avoidance options such as turnover, absenteeism, and intention to retire early (Harju, Hakanen, & Schaufeli, 2014; Kass et al., 2001). A short-term avoidance response is procrastination. There is evidence that boredom proneness and anticipated boringness of a task are related to procrastination, with tasks perceived as likely to be boring put off rather than undertaken in a timely manner (Ferrari, 2000; Senécal, Lavoie, & Koestner, 1997; Steel, 2007; Vodanovich & Rupp, 1999; Wan, Downey, & Stough, 2014).

Van Hooff and Van Hooft (2014) found, following Affective Events Theory (Weiss & Cropanzano, 1996), that boredom produces affect-driven bored behavior such as working slowly, taking long breaks, pretending to be busy, and doing non-work-related tasks as well as engaging in counterproductive work behavior. Additional evidence for counterproductive work behavior as an outcome of boredom comes from Bruursema, Kessler, and Spector (2011). They found that trait boredom proneness was positively related to all six dimensions of counterproductive work behavior (abuse against others, production deviance, sabotage, withdrawal, theft, and horseplay). Employee reports of the amount of objective repetition and monotony in their jobs also predicted counterproductive work behavior in this study. Finally, boredom proneness and repetition interacted, with those high on dispositional boredom proneness being especially likely to commit counterproductive work behaviors when their jobs were repetitive (Bruursema et al., 2011). Bored employees may engage in more interesting or personally relevant non-work tasks such as cyberloafing and other forms of time banditry while they are supposed to be working (Brock, Martin, & Buckley, 2013; Eddy, D'Abate, & Thurston, 2010; Martin, Brock, Buckley, & Ketchen, 2010; Van der Heijden et al., 2012; Wan et al., 2014). Critical management theorist Paulsen (2015) notes

the very high rate of *empty labour* or *time appropriation* (doing non-work activities during work time) in modern organizations, often enabled by internet access. This may be cast as not just an attempt to relieve boredom by an individual, but as an emancipatory act of resistance to management. Successfully stealing time from the employer may be an enjoyable game and a way to re-establish autonomy.

A potential off-task response to boredom which may be increasingly important is eating, drinking, or snacking. These activities provide oral stimulation, a break from the current task, the opportunity to move around, and possibly a chance to interact with others. Roy's (1959) classic participant observation study of work group social life on a repetitive factory job noted that the work day was punctuated with ritualized interactions involving food – banana time, peach time, lunch time, coffee time, fish time, and Coke time. Research in health psychology confirms that eating is a common response to boredom (e.g. Crockett, Myhre, & Rokke, 2015; Havermans et al., 2015; Koball, Meers, Storfer-Isser, Domoff, & Musher-Eizenman, 2012). The phenomenon extends to animals too, with mink caged in an un-enriched environment eating more mink treats than those kept in an enriched environment (Meagher & Mason, 2012). Recently, Sonnentag, Pundt, and Venz (2017) explored between and within-person predictors of eating sweet vs healthy snacks at work. Self-control demands such as keeping one's attention on a task even though bored or performing emotional labour were associated with stronger affect-regulation motives, which in turn predicted choice of sweet treats. Given societal concern with obesity and unhealthy eating, organizations may wish to consider whether their job designs increase this risk among employees, as well as other means they might use to encourage healthy choices when employees snack (Sonnentag et al., 2017).

When bored, individuals attempt to re-establish meaning in what they are doing (Barbalet 1999, Van Tilburg and Igou, 2011). This might be done either on or off task, and

by redefining and enhancing the meaningfulness of the entire job or by performing single meaningful acts during acute episodes of boredom. At job level, Isaksen (2000) explored how incumbents in repetitive food preparation jobs created meaning around their very mundane work. Qualitative analyses revealed eight types of meaning: seeing work as central to one's self-identity and self-respect, valuing social relationships at work, appreciating that pay or other outcomes of work facilitate satisfying activities outside of work (family well-being, future projects), learning new things which provides satisfaction, working hard to produce a high quality product one can be proud of, contributing to the well-being of others, creating ways to improve the job, and experiencing freedom through control of one's own work tasks. All 28 interviewees mentioned at least two forms of meaning making, with some using as many as six. Those who endorsed more forms of meaning were less likely to complain about the meaningless of the job as a whole.

Van Tilburg and Igou (2011) pointed out that social identification is a source of personal meaning, so that one way to increase meaning would be to identify more strongly with an in-group. In five laboratory studies, they showed that induced boredom increased positive evaluation of in-group features, preferential treatment of an in-group member, and punitive behavior toward an out-group member. They further demonstrated that these effects were mediated by the strength of motivation to engage in meaningful behavior. These findings are consistent with a suggestion by Barbalet (1999) that intergroup conflict might be a means by which individuals reduce boredom through increased meaning and in-group cohesion. Johnsen (2016) suggests that bored workers can create meaning and identity though shared anti-management activities, as demonstrated by Roy's (1959) factory workers and the daily food rituals they created.

On a more positive note, another way to increase meaning at a moment in time is to perform a prosocial behavior, and there is some evidence that boredom can increase this

propensity. Van Tilburg and Igou (2017) showed that induced boredom resulted in the intention to donate more to a charity, especially when the charity was seen as highly effective. Perceived meaninglessness mediated the relationship between felt boredom and intention to give. Skowronski (2012) suggested that organizational citizenship behaviors may reduce boredom by providing variety as well as meaning, and that this response would be more likely to be used by employees who are autonomously motivated and who identify with the organization's goals. Likewise, any discretionary proactive behavior (Bindl & Parker, 2011) would be a way that bored individuals could increase autonomy, meaning, and variety for themselves while improving organizational outcomes at the same time.

<b>Performance<b>

I have discussed how bored employees may respond cognitively and/or behaviorally to manage their own experience of boredom. However, in the work context, organizationally defined performance matters too. In some cases, employees' boredom management efforts compromise performance or safety, as when individuals miss work altogether, procrastinate or avoid essential tasks, mind wander to the point that performance deteriorates, challenge themselves with risky horseplay, or engage in extensive personal behavior on company time (Eddy et al., 2010). The cost of many of these behaviors is not obvious or easy to calculate, so the true cost of boredom at work may not be fully appreciated.

There is not a great deal of recent research on the relationship between experienced boredom and externally measured job performance, though one study found that trait boredom proneness was associated with lower supervisor performance ratings (Watt & Hargis, 2010), and boredom has been found to predict accidents (e.g. Drory, 1982; Frone, 1998). The largest bodies of research on boredom and objective performance are in the areas of education and human factors. Educational researchers have reported extensive evidence that student boredom predicts poor academic outcomes, misbehavior in the classroom, and

dropping out of school (e.g. Goetz & Hall, 2014; Pekrun et al., 2014; Renninger & Hidi, 2016). Human factors psychologists and engineers have generated a great deal of research on cognitive fatigue and decrements in vigilance performance in occupations such as radar operator, pilot, and driver (e.g. Ackerman, 2011; Larue, Rakotonirainy, & Pettitt, 2011). They have found that experienced boredom is implicated in the vigilance decrements that begin to manifest after about 30 minutes on signal detection tasks (Pattyn, Neyt, Henderickx, & Soetens, 2008). Given limited attentional capacity, the mind wandering which often accompanies boredom may result in 'perceptual decoupling from sensory input' such that external information is less likely to be noticed (Smallwood, 2015). This makes it more likely that important signals from the primary task will be missed, resulting in slower or less consistent responding, increased error rates, and accidents (e.g. Casner & Schooler, 2014; 2015; Cummings et al., 2016; Finomore, Matthews, Shaw, & Warm, 2009; McVay & Kane, 2009; Sawin & Scerbo, 1995; Stawarczyk et al., 2011).

Boredom may also be good for performance. As mentioned above, employee responses to boredom may include setting challenging goals, learning new things, suggesting task improvements, multi-tasking, or performing organizational citizenship behavior. There have also been suggestions that occasional periods of routine work and state boredom in the midst of an otherwise demanding job may facilitate creative performance (Baars, 2010; Elsbach & Hargadon, 2006; Ohly, Sonnentag, & Pluntke, 2006). Chronic high workload, especially with interruptions and low control, hinders the creativity of professionals (Perlow, 1999). These individuals may need time away from stressful job duties for incubation, and a period of mindless work on simple well-understood tasks with low performance pressure or time pressure may be effective. These are the types of tasks that might induce boredom if prolonged, but also provide temporary respite from persistent high attention demands. Employees might experience what Goetz et al. (2014) called 'indifferent boredom' – a

relaxed low arousal state of slightly positive affective tone in which their spare mental capacity can subconsciously work on problem solutions. Laboratory evidence shows that creativity is enhanced more by an incubation period of work on a low cognitive demand task than an equally long period of rest (Baird et al., 2012; Sio & Ormerod, 2009). The idea that boredom (in small doses) may be good for performance has implications for the design of high pressure jobs with creative demands (Elsbach & Hargadon, 2006; Ohly et al., 2006).

<a>Concluding Thoughts<a>

The emotion of state boredom is attracting increased attention from scholars in many disciplines, across a variety of settings, and using a wide range of research methods. We know that boredom is an unpleasant state which is associated with other negative emotions both concurrently and in the near term (e.g., Chin et al., 2017; Van Hooff and Van Hooft, 2016; 2017). Typical or chronic boredom at work is negatively correlated with the attitudinal outcomes generally considered most important to organizations, including job satisfaction, organizational commitment, and engagement (Harrison, Newman, & Roth, 2006; Reijseger et al., 2013), and chronic boredom proneness is associated with many indicators of poor well-being and destructive behavior both on and off the job (Vodanovich & Watt, 2016). Employee responses to boredom are many and varied, cognitive and behavioral, and sometimes productive but often destructive for organizations.

Most of the research on boredom at work has been at the stable person level, measuring typical or chronic boredom as an attitude toward the job as a whole or boredom proneness as a disposition, rather than state boredom as a transient emotional experience in connection with the immediate task and setting. The recent application of experience sampling methodology in the field and experimentation using boredom inductions in the laboratory have permitted more fine-grained examination of the near-term antecedents and consequences of boredom, but there is much yet to be learned. For instance, it is likely that

time on task is relevant to the development and impact of boredom in the workplace, as it is in the extreme case of vigilance tasks. The impact of breaks and interest enhancing strategies on boredom could also be examined. The concept of stable *individual boredoms* and how they are developed, paralleling the research on individual interests, is also worth pursuing. Job crafting or strengths-based job design may offer the possibility of avoiding or minimizing exposure to tasks which are deeply loathed and meaningless to a particular individual, when the person in the next office may find the same tasks fascinating and rich in meaning.

Organizational interventions in the form of traditional job redesign are likely to reduce boredom (Hackman & Oldham, 1980). Autonomy-supportive leadership may also help (Jang, 2008). Relational job design in which employees have contact with or see the beneficial impact of their activities on others may reduce the incidence of boredom through reappraisal mechanisms that enhance meaning and perhaps stimulate self-set goals (Grant, 2007; 2008a). Attempts by organizations to imbue a sense of meaning in employees through job design, ethical leadership, and culture and shared values may help, though run the risk of backfiring if seen as inauthentic (Bailey et al., 2017).

Understanding state as well as chronic boredom may become more important in the future as the workplace is increasingly populated by Millennials and their successors Generation Z. While good research is lacking, the popular press have publicized reports of decreasing attention spans among digital natives (McSpadden, 2015). Mael and Jex (2015) suggest that boredom on the job is on the rise in the West, although repetitive and simple work is increasingly being automated or off-shored. They ask why boredom should be increasing at the same time as jobs are becoming more complex. Their answer is that the ubiquitous presence of information and communication technology has greatly increased the amount and continuous availability of many forms of stimulation. Individuals who have habituated to multi-tasking and constant entertainment may suffer boredom when required to

concentrate on one thing at a time or to forego continuous access to mobile phones, internet entertainment, and social media while at work. This situation fits neatly into the definition of boredom developed in this chapter – these workers may feel trapped in a low autonomy situation, with less variety and stimulation than they are accustomed to, without access to personally meaningful social media, to which their mind wanders frequently, making it difficult to concentrate on their work tasks. Come to think of it, this describes most inhabitants of today's college classrooms as well.

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